PERGAMON

Computers & Graphics 26 (2002) III–X

COMPUTERS &GRAPHICS

www.elsevier.com/locate/cag

List of Contents

NUMBER 1

In this issue the special topic is
DIGITAL STORYTELLING
Guest Editor: Ulrike Spierling

Digital Storytelling

Ulrike Spierling 1 Editorial

Ken Perlin 3 Better acting in computer games: the use of procedural methods

Chris Crawford 13 Artists and engineers as cats and dogs: implications for interactive storytelling

Celia Pearce 21 Emergent authorship: the next interactive revolution

Ulrike Spierling, Dieter Grasbon, Norbert Braun and **Ido Iurgel** 31 Setting the scene: playing digital director in interactive storytelling and creation

Ralf Dörner, Paul Grimm and **Daniel F. Abawi** 45 Synergies between interactive training simulations and digital storytelling: a component-based framework

Mikael B. Skov and **Jan Stage** 57 Designing interactive narrative systems: is object-orientation useful?

Technical Section

Yong-Qing Li, Ying-Lin Ke, Wei-Shi Li, Qun-Sheng Peng and **Jian-Rong Tan** 67 Termination criterion for subdivision of triangular Bézier patch

Andrea L. Wiens and **Brian J. Ross** 75 Gentropy: evolving 2D textures

Jian J. Zhang and **Lihua You** 89 PDE based surface representation—vase design

Sébastien Thon and **Djamchid Ghazanfarpour** 99 Ocean waves synthesis and animation using real world information

Naai-Jung Shih and **Yu-Tun Tsai** 109 A photogrammetry-based verification of assumptions applied in the interpretation of paper architecture

Gilles Rougeron, François Gaudaire, Yannick Gabillet and **Kadi Bouatouch** 125 Simulation of the indoor propagation of a 60 GHz electromagnetic wave with a time-dependent radiosity algorithm

Chaos and Graphics

Alfonso Ortega, Marina de la Cruz and **Manuel Alfonseca** 143 Parametric 2-dimensional L systems and recursive fractal images: Mandelbrot set, Julia sets and biomorphs

Gordon R.J. Cooper 151 Dynamics on the complex sphere and torus

Education

Rosalee Wolfe 163 Teaching visual aspects in an introductory computer graphics course

Systems

Lilly Spirkovska and **Suresh K. Lodha** 169 AWE: aviation weather data visualization environment

Letter to the Editor

M. Sarfraz 193 Some remarks on a rational cubic spline for the visualization of monotonic data

199 Announcements

205 Past/Future Issues

NUMBER 2

In this issue the special topic is
VISUALIZATION OF VERY LARGE DATASETS
Guest Editors: Ronald Peikert, David Ebert and Jean M. Favre

Data Visualization

Ronald Peikert, David S. Ebert and **Jean M. Favre** 207 Guest editors' introduction

Visualization of Very Large Datasets

Zhiyan Liu, Adam Finkelstein and **Kai Li** 209 Improving progressive view-dependent isosurface propagation

Thomas Gerstner 219 Multiresolution extraction and rendering of transparent isosurfaces

Jiří Hladůvka and **Eduard Gröller**	229	Smallest second-order derivatives for efficient volume-data representation
Suzana Djurcilov, Kwansik Kim, Pierre Lermusiaux and **Alex Pang**	239	Visualizing scalar volumetric data with uncertainty
X. Tricoche, T. Wischgoll, G. Scheuermann and **H. Hagen**	249	Topology tracking for the visualization of time-dependent two-dimensional flows
Chris Harding, Ioannis A. Kakadiaris, John F. Casey and **R. Bowen Loftin**	259	A multi-sensory system for the investigation of geoscientific data
		Technical Section
Moonja Jeong, Gi Ok Kim and **Seong-A Kim**	271	Dynamics of Newton's method for solving some equations
Gian Paolo Lorenzetto, Amitava Datta and **Richard C. Thomas**	281	A fast trapezoidation technique for planar polygons
Manuel N. Gamito and **F. Kenton Musgrave**	291	An accurate model of wave refraction over shallow water
P.-L. Lesage and **M. Visvalingam**	309	Towards sketch-based exploration of terrain
Ramón Mollá Vayá and **Roberto Vivó Hernando**	329	Fixed-point digital differential analyser with antialiasing (FDDAA)
Sang C. Park and **Hayong Shin**	341	Polygonal chain intersection
Alex Brusi, Mateu Sbert, Philippe Bekaert, Robert Tobler and **Werner Purgathofer**	351	Optimal ray shooting in Monte Carlo radiosity
Frank Graf	355	Providing security for eLearning
		Chaos and Graphics
Terry W. Gintz	367	Artist's statement CQUATS—a non-distributive quad algebra for 3D renderings of Mandelbrot and Julia sets
Ning Chen, X.L. Zhu and **K.W. Chung**	371	*M* and *J* sets from Newton's transformation of the transcendental mapping $F(z)=e^{z^m+c}$ with **vcps**
	385	Announcements
	389	Past/Future Issues

NUMBER 3

In this issue the special topic is
BEST PAPERS OF CAD & CG 2001
Guest Editor: Jiaoying Shi

Best Papers of CAD & CG 2001

Jiaoying Shi 391 Guest editor's introduction

Ahmad H. Nasri and **A. Abbas** 393 Designing Catmull–Clark subdivision surfaces with curve interpolation constraints

Lanfang Miao, Xinguo Liu, Qunsheng Peng and **Hujun Bao** 401 BRDC: binary representation of displacement code for line

Guodong Lu, Xuanhui Wu and **Qunsheng Peng** 409 An efficient line clipping algorithm based on adaptive line rejection

Issei Fujishiro and **Yuriko Takeshima** 417 Coherence-sensitive solid fitting

Ji Zhou and **Jiaoying Shi** 429 A robust algorithm for feature point matching

Technical Section

Xiaogang Jin and **Chiew-Lan Tai** 437 Analytical methods for polynomial weighted convolution surfaces with various kernels

J. Ribelles, A. López, O. Belmonte, I. Remolar and **M. Chover** 449 Multiresolution modeling of arbitrary polygonal surfaces: a characterization

Andrew Gee, Richard Prager, Graham Treece and **Laurence Berman** 463 Narrow-band volume rendering for freehand 3D ultrasound

Ivana Kolingerová and **Borut Žalik** 477 Improvements to randomized incremental Delaunay insertion

Uğur Güdükbay, Okan Arıkan and **Bülent Özgüç** 491 Visualizer: a mesh visualization system using view-dependent refinement

Tomek Martyn 505 An elementary proof of correctness of the Chaos game for IFS and its hierarchical and recurrent generalizations

Chaos and Graphics

Clifford A. Reiter 511 Chaotic attractors exhibiting quasicrystalline structure

Mark McClure 519 A stochastic cellular automaton for three-coloring penrose tiles

526 Announcements

531 Past/Future Issues

NUMBER 4

In this issue the special topic is
BEST PAPERS OF DARMSTADT-SYMPOSIUM ON "COMPUTER GRAPHICS—ENABLING TECHNOLOGY FOR THE INFORMATION SOCIETY"
Guest Editors: Peter R. Bono and Dieter W. Fellner

Peter R. Bono and **Dieter W. Fellner**	533	Guest editors' introduction
Andries van Dam, David H. Laidlaw and **Rosemary Michelle Simpson**	535	Experiments in immersive virtual reality for scientific visualization
Aaron Fenster, Kathleen Surry, Wendy Smith, Jeremy Gill and **Dónal B. Downey**	557	3D ultrasound imaging: applications in image-guided therapy and biopsy
Hans-Peter Meinzer, Matthias Thorn and **Carlos E. Cárdenas**	569	Computerized planning of liver surgery—an overview
Georgios Sakas	577	Trends in medical imaging: from 2D to 3D
		Guest Editors' Introduction
Colleen Case and **Lars Kjelldahl**	589	Education
Gustav Taxén and **Ambjörn Naeve**	593	A system for exploring open issues in VR-based education
Andrea Wollensak	599	Curricular modules: 3D and immersive visualization tools for learning
Dennis J. Bouvier	603	From pixels to scene graphs in introductory computer graphics courses
Dalton Hunkins and **David B. Levine**	609	Additional rich resources for computer graphics educators
Eric Klopfer, Vanessa Colella and **Mitchel Resnick**	615	New paths on a StarLogo adventure
Maribeth Back, Jonathan Cohen, Steve Harrison and **Scott Minneman**	623	*Speeder Reader:* An experiment in the future of reading
Ruisong Ye	629	Another choice for orbit traps to generate artistic fractal images
		Chaos and Graphics
Robert W. Fathauer	635	Fractal tilings based on v-shaped prototiles
	645	Announcements
	651	Past/Future Issues

NUMBER 5

In this issue the special topic is
GEOMETRIC MODELING AND COMPUTER GRAPHICS
Guest Editors: Myoung-Hee Kim and Anath Fischer

M.-H. Kim	653	Special Issue: Geometric modeling and computer graphics
Myoung-Hee Kim	655	CURRICULUM VITAE
Anath Fischer	656	CURRICULUM VITAE
Sun-Jeong Kim, Chang-Hun Kim and **David Levin**	657	Surface simplification using a discrete curvature norm
Stephan Bischoff and **Leif Kobbelt**	665	Towards robust broadcasting of geometry data
Yunjin Lee, Hyoung Seok Kim and **Seungyong Lee**	677	Mesh parameterization with a virtual boundary
Seungbum Koo and **Kunwoo Lee**	687	*Wrap-around* operation to make multi-resolution model of part and assembly
Soo-Mi Choi and **Myoung-Hee Kim**	701	Shape reconstruction from partially missing data in modal space
Seok-Hyung Bae, Hayong Shin, Won-Hyung Jung and **Byoung K. Choi**	709	Parametric-surface adaptive tessellation based on degree reduction
Jihad El-Sana, Nir Asis and **Ofer Hadar**	721	Integrating motion perception with view-dependent rendering for dynamic environments
Emanoil Zuckerberger, Ayellet Tal and **Shymon Shlafman**	733	Polyhedral surface decomposition with applications
J. Barhak and **A. Fischer**	745	Adaptive reconstruction of freeform objects with 3D SOM neural network grids
		Technical Section
Tomek Martyn	753	On approximation accuracy of the Chaos Game's finite-time activity
Chih-Ching Thien and **Ja-Chen Lin**	765	Secret image sharing
Andrés Molina and **Francisco R. Feito**	771	A method for testing anisotropy and quantifying its direction in digital images
K. Sridharan	785	Efficient computation of a measure of depth between convex objects for graphics applications

M. Sarfraz and **M.F.A. Razzak** 795 An algorithm for automatic capturing of the font outlines

A.J. Rueda, F.R. Feito and **M. Rivero** 805 A triangle-based representation for polygons and its applications

Chaos and Graphics

Hinke M. Osinga and **Bernd Krauskopf** 815 Visualizing the structure of chaos in the Lorenz system

825 Announcements

829 Past/Future Issues

NUMBER 6

In this issue the special topic is
COMPUTER GRAPHICS IN BRAZIL
Guest Editor: Shin-Ting Wu

Computer Graphics in Brazil

831 Best Paper Award 2001

Shin-Ting Wu 837 Guest editor's introduction

Hélio Lopes, João Batista Oliveira and **Luiz Henrique de Figueiredo** 841 Robust adaptive polygonal approximation of implicit curves

Shin-Ting Wu and **Osmar Aléssio** 853 Complete and non-overlapping marching along a closed regular intersection curve

Luiz Velho, Ken Perlin, Henning Biermann and **Lexing Ying** 865 Algorithmic shape modeling with subdivision surfaces

Cesar Tadeu Pozzer and **Sérgio Roberto Matiello Pellegrino** 877 Procedural solid-space techniques for modeling and animating waves

Luiz Gonçalves, Marcelo Kallmann and **Daniel Thalmann** 887 Defining behaviors for autonomous agents based on local perception and smart objects

V. Marion-Poty and **Wilfrid Lefer** 899 A wavelet decomposition scheme and compression method for streamline-based vector field visualizations

William M. Lira, Paulo Roma Cavalcanti, Luiz C.G. Coelho and **Luiz F. Martha** 907 A modeling methodology for finite element mesh generation of multi-region models with parametric surfaces

Technical Section

Yann Argotti, Larry Davis, Valerie Outters and **Jannick P. Rolland** 919 Dynamic superimposition of synthetic objects on rigid and simple-deformable real objects

Daniel C. Cliburn, Johannes J. Feddema, James R. Miller and **Terry A. Slocum** 931 Design and evaluation of a decision support system in a water balance application

Z. Les 951 Shape understanding system: understanding the thin object

Chaos and Graphics

Mathew P. Dafilis, Paul D. Bourke, David T.J. Liley and **Peter J. Cadusch** 971 Visualising chaos in a model of brain electrical activity

Jos Leys 977 Biomorphic art: an artist's statement

981 Announcements

983 Past/Future Issues

I Contents/Author Index for Vol 26